

What is claimed is:

1. A method comprising:

receiving previously recorded altitude information generated by an inertial
navigation system (INS) of an aircraft and altitude information generated by a
global positioning system (GPS) of the aircraft; and

determining altitude information of the aircraft based on the received altitude
information generated by the INS of the aircraft and altitude information
generated by the GPS of the aircraft.

2. The method of Claim 1, further comprising generating a static pressure value based
on the determined altitude information.

3. The method of Claim 1, wherein the altitude information generated by the GPS
includes differentially corrected altitude information.

4. The method of Claim 1, wherein determining includes:

adjusting the altitude information based on known aircraft position defined by a
system other than the INS and the GPS.

5. The method of Claim 1, wherein determining includes:

performing an integration of a temperature adjusted vertical velocity value
produced by the INS; and
adjusting the result of the integration according to aircraft pitch, roll, and yaw.

6. The method of Claim 5, wherein determining includes:

performing a curve fit between the INS altitude information and the GPS altitude
information.

7. The method of Claim 6, wherein performing the curve fit includes:
performing a least squares fit between the INS altitude information and the GPS
altitude information.
8. The method of Claim 1, wherein determining includes:
5 performing a double integration of a vertical acceleration value produced by the
INS; and
adjusting the result of the double integration according to aircraft pitch, roll, and
yaw.
9. The method of Claim 8, wherein determining includes:
10 performing a curve fit between the INS altitude information and the GPS altitude
information.
10. The method of Claim 9, wherein performing the curve fit includes:
performing a least squares fit between the INS altitude information and the GPS
altitude information.
11. The method of Claim 1, further comprising:
15 generating impact pressure based on the generated static pressure and previously
recorded pressure information from a pitot system of the aircraft.
12. The method of Claim 11, further comprising:
generating calibrated airspeed based on the generated impact pressure; and
20 performing at least one of building a simulation model based on the calibrated
airspeed and determining aircraft performance data based on the calibrated
airspeed and altitude.

13. The method of Claim 12, wherein building a simulation model is further based on previously recorded data from one or more sensors of the aircraft.

14. A program product residing on a computer readable medium, the program product comprising:

5 first computer program code means configured to receive previously recorded altitude information generated by an inertial navigation system (INS) of an aircraft and altitude information generated by a global positioning system (GPS) of the aircraft; and

10 second computer program code means configured to determine altitude information of the aircraft based on the received altitude information generated by the INS of the aircraft and altitude information generated by the GPS of the aircraft.

15. The product of Claim 14, further comprising a third computer program code means configured to generate a static pressure value based on the determined altitude information.

15 16. The product of Claim 14, wherein the altitude information generated by the GPS includes differentially corrected altitude information.

17. The product of Claim 14, wherein the first computer program code means is configured to adjust the altitude information based on known aircraft position defined by a system other than the INS and the GPS.

20 18. The product of Claim 14, wherein the first computer program code means is configured to perform an integration of a temperature adjusted vertical velocity value produced by the INS and adjust the result of the integration according to aircraft pitch, roll, and yaw.

19. The product of Claim 18, wherein the first computer program code means is configured to perform a curve fit between the INS altitude information and the GPS altitude information.

20. The product of Claim 19, wherein the curve fit is a least squares fit between the INS
5 altitude information and the GPS altitude information.

21. The product of Claim 14, wherein the first computer program code means is configured to perform a double integration of a vertical acceleration value produced by the INS and adjust the result of the double integration according to aircraft pitch, roll, and yaw.

22. The product of Claim 21, wherein the first computer program code means is
10 configured to perform a curve fit between the INS altitude information and the GPS altitude information.

23. The product of Claim 22, wherein the curve fit is a least squares fit between the INS altitude information and the GPS altitude information.

24. The product of Claim 14, further comprising:
15 third computer program code means configured to generate impact pressure based on the generated static pressure and at least one of previously recorded pressure information from a pitot system of the aircraft or recorded true airspeed of the aircraft.

25. The product of Claim 24, further comprising:
20 fourth computer program code means configured to generate calibrated airspeed based on the generated impact pressure; and
fifth computer program code means configured to build at least one of the simulation model and aircraft performance data based on the calibrated

airspeed and previously recorded aircraft performance data from other sensors of the aircraft.

26. The product of Claim 25, wherein the fifth computer program code means is further configured to build at least one of the simulator model and aircraft performance data based on previously recorded data from one or more sensors of the aircraft.

27. An apparatus comprising:

memory for storing recorded altitude information generated by an inertial navigation system (INS) of the aircraft and altitude information generated by a global positioning system (GPS) of the aircraft;

one or more user interface devices; and

a processor coupled to the memory and the one or more user interface devices, the processor including:

a first component configured to determine altitude information of the aircraft based on the received altitude information generated by the INS of the aircraft and altitude information generated by the GPS of the aircraft.

28. The apparatus of Claim 27, wherein the processor further includes a second component configured to generate a static pressure value based on the determined altitude information.

29. The apparatus of Claim 27, wherein the altitude information generated by the GPS includes differentially corrected altitude information.

30. The apparatus of Claim 27, wherein the first component is configured to adjust the altitude information based on known aircraft position defined by a system other than the INS and the GPS.

31. The apparatus of Claim 27, wherein the first component is configured to perform an integration of a temperature adjusted vertical velocity value produced by the INS and adjust the result of the integration according to aircraft pitch, roll, and yaw.

32. The apparatus of Claim 31, wherein the first component is configured to perform a curve fit between the INS altitude information and the GPS altitude information.

33. The apparatus of Claim 32, wherein the curve fit is a least squares fit between the INS altitude information and the GPS altitude information.

34. The apparatus of Claim 27, wherein the first component is configured to perform a double integration of a vertical acceleration value produced by the INS and adjust the result of the double integration according to aircraft pitch, roll, and yaw.

35. The apparatus of Claim 34, wherein the first component is configured to perform a least squares fit between the INS altitude information and the GPS altitude information.

36. The apparatus of Claim 35, wherein the curve fit is a least squares fit between the INS altitude information and the GPS altitude information.

37. The apparatus of Claim 27, further comprising:

a third component configured to generate impact pressure based on the generated static pressure and previously recorded pressure information from a pitot static system of the aircraft.

38. The apparatus of Claim 37, further comprising:

a fourth component configured to generate calibrated airspeed based on the generated impact pressure; and

a fifth component configured to build at least one of the simulation model and aircraft performance data based on the calibrated airspeed and previously recorded data from other sensors of the aircraft.

5

39. The apparatus of Claim 38, wherein the fifth component is further configured to build at least one of the simulator model and aircraft performance data based on previously recorded data from one or more sensors of the aircraft.